

REMARKS

Claims 38 and 39 have been previously cancelled. The claims remaining in the application are 1-37 and 40-111.

Rejection Under 35 U.S.C. § 103

The Office Action has rejected claims 1-5, 8-12, 14, 17-20, 23-39, 41, 44, 47-58, 60-74, 77, 78, 80-93, 96, 97, 99, and 101-111 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,691,309 (Lorie) in view of U.S. Patent Application Publication NO. 2001/0056429 (Moore et al.). This rejection is respectfully traversed.

The Office Action has rejected claims 62-70, 74, 77, 78, 80-93, 96, 97, 99, and 101-107 on substantially the same basis as one or more of the claims 2-5, 8-12, 14, 17-20, 23-39, 41, 44, and 47-49, in light of claim 61 above. This rejection is respectfully traversed.

The Office Action has rejected claims 6, 7, 13, 15, 16, 21, 22, 40, 42, 43, 45, 46, 59, 75, 76, 79, 94, 95, 98, and 100 under 35 U.S.C. 103(a) as being unpatentable over Lorie in view of Moore as applied to claim 1 above, and further in view of U.S. Patent No. 6,442,296 (Smith et al.). This rejection is respectfully traversed.

The Office Action has rejected claims 40, 42, 43, 45, 46, 59, 75, 76, 79, 94, 95, 98, and 100 on substantially the same basis as one or more of claims 6, 7, 13, 15, 16, 21, and 22 above. This rejection is respectfully traversed.

Lorie discloses a method of archiving digital data or computer program based on using a virtual computer instruction set and saving the algorithm that decodes the data as a program in that virtual machine language. Although it avoids the problem of long term changes in digital standards and data formats, it does not address the problem that in order for the archived data to remain available and accessible in long term, migration of the archived data is necessary from one storage system to a new storage system, as the storage platform evolves over time. The need for data migration is understood from the fact that the disclosed Universal Virtual Computer and its functional elements are implemented in various computing environments and stored in computer memory or similar kind of digital medium. Lorie has explicitly stated this need in a related publication "Long Term Preservation of Digital Information", pp. 352.

Moore et al. discloses an implementation of a persistent archive of a collection of data objects. It teaches that the archive is embodied on a processor readable medium (page 1, paragraph 7); so the archive is also stored in a binary system and necessarily requires data migration over time. Therefore, just like the Lorie disclosure, the Moore et al. disclosure also does not address the problems associated with the need for data migration.

As discussed on page 2, paragraph 1 in the specification of the present invention, the task of maintaining archived data through migration can be daunting, and may be costly and labor-intensive and can involve risk of data loss. This problem is inherent in binary storage systems, such as those required by the Lorie method and the Moore et al. disclosure, and is exactly one of the key problems addressed by the present invention.

The present invention not only provides a method for long term storage of digital data allowing data retrieval independent of hardware and software applications, but it also addresses the problem of the need for data migration. It provides a complete, end-to-end system solution involving the writing of digital data as images on analog preservation media, which are expected to last hundreds of years when stored under suitable conditions (p1, paragraph 2) and thus eliminate the cost and risks of data migration (p10, paragraph 5).

The present invention has been distinguished from U.S. Patent No. 6,442,296 (Smith et al.) (which, at the time of filing, was not yet issued, but was published as PCT application WO 00/28726) on page 6, paragraph 3. Smith et al. discloses storage of a two-dimensional document on a laser-writable optical storage medium, wherein an image of the document is written onto the media along with the binary data representing the digital record. However, the solution disclosed in Smith et al. is limited to storage of document data, which is merely a subset of the larger set of data types that may need to be preserved. It does not address how to preserve digital data other than documents. The present invention discusses the need to preserve other forms of digital data in long-term media (page 7, paragraph 3), and provides a solution by adapting Extensible Markup Language (see section on Data Encoding on page 28) for encoding data for preservation. The other significant drawback of the Smith et al. system is that it employs conventional optical recording medium requiring a laser for writing. The

present invention does not have this limitation; the preservation medium can be exposed by a wide variety of light sources, as discussed on p. 26, paragraph 1. Furthermore, the Write-Many-Times characteristic of the system disclosed in Smith et al. makes the system unsuitable for preserving data records that are certifiably unaltered over time. The need to have a write-once data preservation system, however, is addressed (see last paragraph on page 2) and provided for by the present invention.


CONCLUSION

Dependent claims not specifically addressed add additional limitations to the independent claims, which have been distinguished from the prior art and are therefore also patentable.

In conclusion, none of the prior art cited by the Office Action discloses the limitations of the claims of the present invention, either individually or in combination. Therefore, it is believed that the claims are allowable.

If the Examiner is of the opinion that additional modifications to the claims are necessary to place the application in condition for allowance, he is invited to contact Applicant's attorney at the number listed below for a telephone interview and Examiner's amendment.

Respectfully submitted,



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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.